

The Citizen Forester

OCTOBER 2015

NO. 183

Tree Planting and Cold Hardiness

By Amanda Bayer, Tina Smith, and Rick Harper

With the winter of 2014-2015 a distant memory (or

not distant enough...many of us still recall that February was 12 deg F *below* normal here in MA!) and the late-summer/early fall tree planting season right around the corner, we urban tree enthusiasts need to remain vigilant that the trees that we plant are indeed compatible with our cold northeastern temperatures. After all, just because we buy something locally, doesn't mean that it originated here. Trees and shrubs available for sale in Massachusetts may have been grown in states with significantly warmer climates. So we naturally ask ourselves, "*will a tree grown in the south be as cold-hardy as the same variety grown here in the Bay State?*"

Adaptation and acclimation are the two mechanisms underlying plant survival and cold winter temperature. An adaptation is a modification that is inherited from one generation to the next. These structural and functional modifications allow plants to survive in a given area. For example, trees of a named variety are genetically the

same. Therefore, if a tree is propagated vegetatively, such as by cutting or division, then the trees of that variety are genetically the same. If the trees of a named variety are grown from seed from controlled pollination, then the trees of that specific variety are also *nearly* the same. If the named variety is genetically cold hardy, then it has the potential to be cold-hardy regardless of where it is grown. On the other hand, some trees offered for sale may *not* be a named variety and may have been collected (or the seed collected) from the wild, from a region with a warmer climate. In this case, each tree will vary, and are adapted to the particular region from which they were collected. Thus, the

origin of the seed or origin of the tree itself, will influence the cold-hardiness, and possibly survivability.

Acclimation differs from adaptation in that it is an uninheritable modification that occurs during the life of the plant. The capacity of a plant to acclimate is genetic, but the specific changes that occur are not. Acclimation occurs with gradual exposure to a stress, like decreasing temperatures. Dormancy is the first stage of acclimation for woody plants, and is prompted by the shorter days of autumn. The second stage of acclimation is the metabolic changes that occur within the plant, after frost exposure. So it is important to keep in mind that a plant needs time to acclimate. A tree like *Acer rubrum* is hardy from Florida to Maine, and if it were brought north in the spring or summer the tree would have more time to acclimate in the fall in order to (hopefully) survive the winter. If the same plant were grown in the south and transported north in November, it may *not* have time to acclimate and may *not* have acquired the ability to endure the below freezing temperatures that the ensuing winter would certainly bring.

Tree enthusiasts can find their respective cold-hardiness zone by looking at the USDA Plant Hardiness Zone Map. This map is the standard by which tree managers, producers and enthusiasts can determine which plants are most likely to thrive at a given location. The map is based on the average annual minimum winter temperature, divided into 10-degree F zones. This information may be correlated to the information labels that are attached to trees, shrubs and herbaceous perennials that include information about their cold-hardiness – their specifically designated zone range. The lower the zone number, the more cold-tolerant the plant will be. In Massachusetts, zones range from 7a on Cape Cod to 5a in the Berkshires. The majority of western Massachusetts is in zone 5b, while most areas in coastal eastern Mass are designated as zone 6b, where the average annual extreme

(Continued on page 2)

Up Ahead:

Tree Planting & Cold Hardiness	1-2
Species Spotlight	3-4
Growing on Trees	5
Webcasts	7
White Pine Blister Rust	9
Grants	10
Gleanings	12
News	13
On the Horizon	14

Tree Planting & Cold Hardiness

minimum winter temperature is between 0 and -5 degrees F. Tree care professionals/enthusiasts located in 6b should be able to grow trees that are hardy to zone 6, as well as plants with designated lower numbered zones (5,4,3), within reason. They may, however, often be challenged to grow plants that are hardy to higher zones (8, 9, 10) as those trees may not survive in the colder zone 6 winter temperatures.

It is also important to remember that “microclimates” in the urban environment exist, that are even as specific as the tree planting site itself. This may allow trees to be successfully grown that are listed at a higher zone number, that would not normally survive. For example, a warm, sunny location with well-drained soil that is protected from the cold and wind near a building in a zone 6 locale, may actually be able to house trees from perhaps a zone 7 or 8. Conversely, another planting site in that same zone 6 locale may be exposed, unprotected and low-lying (where cold settles), making it effectively a zone 5 site where even a zone 6 tree may struggle. Thus, though a helpful resource, Hardiness Zone Maps have their limitations and perhaps should be better viewed as more of a guide with the actual constraints of the planting site being equally limiting.

References

2012 USDA Plant Hardiness Zone Map

<http://planthardiness.ars.usda.gov/PHZMWeb/>

Hopkins, W.G. and N.P. Hüner. 2004. Introduction to Plant Physiology. 3rd Edition. John Wiley & Sons, Inc. Hoboken, N.J.

McKeag L. The USDA Plant Hardiness Zone Map – Changes in the 2012 Edition. 2014 UMass Extension Fact Sheet from an article by Deborah C. Swanson, UMass Extension Plymouth County, *Retired*.
<http://ag.umass.edu/fact-sheets/usda-plant-hardiness-zone-map-changes-in-2012-edition>

Amanda Bayer is the Extension Assistant Professor of Sustainable Landscape Horticulture in the UMass Stockbridge School of Agriculture.

Rick Harper is the Extension Assistant Professor of Urban & Community Forestry in the UMass Department of Environmental Conservation.

Tina Smith is the UMass Extension Specialist for Greenhouse Crops and Floriculture

Tree City USA, Tree Line USA, Tree Campus USA

Applications are due December 31, 2015

Tree City USA

The Arbor Day Foundation's [online portal](#) for Tree City USA applications is now available for 2015 applications. We have posted detailed instructions on our website:

[2015 Tree City USA Application Instructions and](#)

[Worksheets](#)  

[Sample Work Plans](#) 

Additional information: [What is Tree City USA?](#)

Tree Line USA

Tree Line USA recognizes public and private utilities for practices that “protect and enhance” the urban forest.

There are five core standards that companies meet.

The goals of Tree Line USA are to promote a safe, reliable electric service and healthy trees in utility service areas. The annual deadline to apply is December 31.

More information on the program can be found at:

<http://www.arborday.org/programs/treelineusa/summary.cfm>

Tree Campus USA

The Tree Campus USA program recognizes college campuses for management of trees and for student and community involvement. Tree Campus USA has five core standards that schools must meet to be eligible.

The annual deadline to apply is December 31. More information on Tree Campus USA can be found at:

<http://www.arborday.org/programs/treeCampusUSA/index.cfm>

For questions about the application process or to find out how your community, utility, college or university can participate, contact Mollie Freilicher, mollie.freilicher@state.ma.us 413-577-2966.

Species Spotlight—Sassafras, *Sassafras albidum*

By Mollie Freilicher
MA-DCR
Community Action Forester

If you grew up in the eastern United States, you probably remember some point in your

childhood when you discovered sassafras. The wiggly trunks. The mitten-shaped leaves. And that *smell*. Like

root beer, but it's a tree!

You might have been in an old field, forest edge, or opening. For me, it was the edge of our yard in suburban Maryland and immediately I was smitten with the shape of the leaves and the spicy, alluring smell when I scratched a twig. We had a small thicket of sassafras that grew among the post oaks, tulip trees, flowering dogwoods, and redbuds in

the woods where the lawn ended and the fun began. Since then, I have always held sassafras dear.

Sassafras is a native tree of the *Lauraceae* family, a family consisting mostly of tropical trees, including avocado (*Persea americana*), bay laurel (*Laurus nobilis*), and trees in the genus *Cinnamomum*, used to produce cinnamon. Sassafras is the only one of its genus native to North America. Another species, *Sassafras hesperia*, which was native to western North America, is now extinct. Our remaining native sassafras is naturally found from southwestern Maine and southern Ontario, south to Florida, and west to eastern Texas. It is also found in the Appalachians, up to 5,000 feet. As described above, it is a thicket-forming tree of edges and openings, particularly in moist, sandy soils, and often is a pioneer species. It is hardy in USDA zones four to nine. It can reach heights of 30-60 feet with a spread of 25 to 40 feet, though it grows largest in the southern portions of its range. In our area, heights of 30 feet are more reasonable. It is pyramidal or irregular as a young tree, but grows into a flat-topped, spreading tree, with irregular branching. The branching is sympodial; instead of new growth originating from the terminal bud, new growth originates from a lateral bud, giving the tree a somewhat zig-zaggy appear-

ance. Another common tree with sympodial branching is dogwood.

Sassafras leaves are alternate, simple, and ovate and leaves can have

two lobes, like a mitten (lefty or righty), or three lobes. On the same tree, you could have three different leaf shapes. The margins of leaves are entire, and the color is bright green above, paler underneath, and often hairy. In the fall, leaves turn yellow, orange, and red. The buds are solitary, ovoid, and stalkless. They have four to six visible scales that are greenish with reddish edges. Lateral buds are smaller and diverge from the stem. The flower bud is the terminal bud. (Hence the sympodial branching.) The stem of sassafras is yellow-green and somewhat bright. The stem is fragrant when scratched. The bark is gray-brown, with ridges or furrows.

Sassafras flowers are dioecious (male and female flowers are on separate trees), yellow, and appear in April, before the leaves. They are clustered at the end of branches in racemes. The flowers develop into a dark blue drupe on a scarlet pedicel that ripens in late summer and quickly disappears into the mouths of birds such as turkeys, phoebes, mockingbirds, sapsuckers, and others. Mammals also enjoy the fruit: black bears, beavers, rabbits, and squirrels. Sassafras does not have serious insects or diseases that plague it and it supports spicebush swallowtail (*Papilio troilus*), cecropia moths (*Hyalophora cecropia*), and promethea moths (*Callosamia promethia*) (Tallamy 2007).

Wood from sassafras does not have much commercial value, as it is soft and is brittle, but it has been used for barrels and posts, due to its resistance to decay. In G.B. Emerson's *Report on the Trees and Shrubs Growing Naturally in the Forests of Massachusetts*, he also notes that sea-



(Continued on page 4)

Species Spotlight—Sassafras, *Sassafras albidum*

(Continued from page 3)

soned wood, light and less brittle, has been used for the joints of fishing rods. Because of the odor of the wood, it does not have many insect problems, and as such, Emerson writes that it was used for trunks and dresser drawers. Oil extracted from roots is made into various products, from perfumes to teas. Colonists believed sassafras was a cure-all and sassafras was sent to England for medicinal purposes. Cultivation for medicinal purposes began in 1630. There is also a long tradition of medicinal use among Native Americans. For a list of historic medicinal uses read the USDA NRCS publication on sassafras. The leaves and roots are somewhat mucilaginous and can be ground up and used to thicken soups, and *filé*, made from ground roots and leaves is used in gumbo and other Cajun foods. Emerson writes of the flavors of sassafras, **“The taste of the leaves is mucilaginous and pleasant; of the fruit, disagreeably spicy.”** I don’t know that I would put mucilaginous and pleasant in the same sentence, but I enjoy okra, so maybe Emerson is on to something.

Emerson notes that the tree does not typically reach great heights in Massachusetts, but he recounts a story of one exceptional tree:

One was growing in 1842, in West Cambridge, which measured more than three feet through at the base, and rose, without a limb, more than thirty feet, with a trunk very straight and slightly diminished, above which it had a somewhat lofty and broad head. It was nearly sixty feet high, and had been long growing by itself. It was felled and its roots dug up, *to allow a stone wall to run in a right line*. Such pieces of barbarism are still but too common. A tree so beautiful and lofty, and of such rare dimensions, such an ornament to a bare hillside, sacrificed to the straightness of a wall!

Then, as now, there was work to be done to preserve **trees in the landscape.** The copy of Emerson’s book that has been digitized (and which I often refer to in these writings) belonged to Asa Gray and appears to have been a gift from Emerson. Gray was a preeminent botanist of



the 19th century, who eventually found a home at Harvard as a professor. Among other undertakings, he amassed a great collection of books and specimens. In **Gray’s copy of this book, there is some marginalia** throughout. In the section quoted above, however, starting with **“It was nearly sixty feet high,”** Gray notes with two exclamation marks the removal of the tree for the sake of the wall.

measured more than three feet through at the base, and rose, without a limb, more than thirty feet, with a trunk very straight and slightly diminished, above which it had a somewhat lofty and broad head. It was nearly sixty feet high, and had been long growing by itself. It was felled and its roots dug up, *to allow a stone wall to run in a right line*. Such pieces of barbarism are still but too common. A tree so beautiful and lofty, and of such rare dimensions, such an ornament to a bare hillside, sacrificed to the straightness of a wall!

The sassafras has been much cultivated in England as an ornamental tree. It is usually propagated by seeds imported from this country. These, as soon as received, are sown or put in a rot-heap, as they sometimes remain two or three years in the ground before they come up. It may be also propagated by suckers which spring up in great numbers from the long creep-

Speaking of the landscape, sassafras is suited for naturalized plantings or edges. It can grow in full sun or some shade and does best in moist, acidic, well-drained soil. Michael Dirr notes that it does not transplant well from the wild due to its taproot, but it can be moved, balled, and burlapped in the spring, or for the more adventurous, grown from cuttings. While sassafras may not be suitable for streetscapes, it can certainly find a home in parks and naturalized areas of the urban forest, where it can support native insects and birds and provide year-round interest with its interesting form, flowers and leaves, and fall color.

Photos: Female flower, Mollie Freilicher; Bark, Buds, Fruit, Virginia Tech; Leaves, Hope College.

Resources

Bicentennial Celebration of Asa Gray, 1810-2010. http://botlib.huh.harvard.edu/libraries/Gray_Bicent/harvard_professor.html

Dirr, Michael A. *Manual of Woody Landscape Plants*. 5th edition. Stipes: Champaign, IL, 1998.

Emerson, George B. 1846. *Report on the Trees and Shrubs Growing Naturally in the Forests of Massachusetts*. Boston: Dutton and Wentworth. www.archive.org.

Tallamy, Douglas W. *Bringing Nature Home*, Timber Press: Portland, OR. 2007.

USDA NRCS, Sassafras Plant Guide, http://plants.usda.gov/plantguide/pdf/cs_saal5.pdf

Growing on Trees

Revisiting Last Month's Spotlight— Common peach

Advice from Henry Lappen, Chair of the Amherst Public Shade Tree Committee. Henry was concerned that we had described peaches as “difficult to grow” and offered some advice to would-be peach growers based on his experience with fruit trees in Massachusetts. Henry advises that “when you choose hardy and disease resistant varieties, peaches are MUCH easier than apples in MA!” According to Henry, “Reliance’ is the best for cold weather hardiness and disease resistance. ‘Redhaven’ is the tastiest and cold hardy here, but does suffer from brown rot.” He has some other varieties, but they are too new to report on here. —Thanks Henry!

If you have something to share on your experience growing peaches or any of our other Spotlights, please share them with us!

Partners in Community Forestry Conference

November 18-19, 2015, Denver, CO

Two days of collaboration and idea sharing geared toward helping you find new ways to strengthen your own community forest. Whether you're an urban forestry professional, an environmental nonprofit, or an educator interested in the role of trees in our cities, there is something at the Partners conference for you. For more information, go to: <https://www.arborday.org/programs/pcf/index.cfm>

New England Chapter, ISA 49th Annual Conference

October 24-27, 2015, North Conway, NH

The 49th Annual Conference is packed with workshops and lectures to bring you the latest in research and techniques in arboriculture and urban forestry. This year, come early for workshops on First Aid, CPR, and AED, aerial rescue, pruning, chainsaw safety and maintenance, and mushrooms and molds. You can come early and take the ISA Certified Arborist, Utility Specialist, Municipal Specialist, or Certified Tree Worker Written Exam. The conference program begins Monday morning and continues through Tuesday afternoon, with a variety of speakers and topics.

For more information, go to: http://newenglandisa.org/annual_conference.html.

Dinner Meeting: Western Mass.

Tree Wardens and Tree Companies

October 6, 2015, 5:00 – 7:30 p.m., Northampton, MA
Come to the second meeting of the Western Mass. Tree Wardens, a sub-group of the Massachusetts Tree Wardens' and Foresters' Association. Meet and network with tree wardens, tree companies, and utility arborists from western Mass. Speaker: Dennis Ryan: “Public Shade Trees and Tree Warden Liabilities, What are you on the hook for?”
For more info: 781-894-4759 or info@masstreewardens.org
www.masstreewardens.org (Upcoming Events)

51st Annual Society of Municipal Arborists Conference

November 16–17 | Sheraton Denver Downtown Hotel
[Register Now](#)

The Society of Municipal Arborists (SMA) is leading the world in building the confidence, competence and camaraderie of the family of professionals who create and sustain community forests. The SMA is an organization of municipal arborists and urban foresters, and their membership also includes consultants, commercial firms and citizens who actively practice or support some facet of municipal forestry.

Baystate Roads Workshop: Creating Revenue Stream for Stormwater Management

Municipalities subject to the EPA stormwater permit (MS4) are responsible for managing stormwater so it does not pollute nearby rivers, streams, and coastal waters. Experts will cover the following topics:

- ◆ Why stormwater management matters
- ◆ MS4 NPDES (stormwater) permit update and time-line
- ◆ Stormwater financing
- ◆ Case studies
- ◆ Working with your community

October 15 • Holiday Inn & Suites Marlborough, 265 Lakeside Ave., Marlborough, MA

October 20 • Hadley Farms Meetinghouse, 41 Russell Street, Hadley, MA

October 22 • Holiday Inn Taunton, 700 Myles Standish Blvd., Taunton, MA

Find out more at www.Baystateroads.org

THE CITIZEN FORESTER

Growing on Trees

Harvard Forest Seminars

Attend in person or join online

<http://harvardforest.fas.harvard.edu/seminars>

Seminars are Fridays at 11:00 a.m. Eastern Time, unless otherwise noted. They are held in the Harvard Forest Seminar Room and also can be joined online via web-streaming. Seminars are free and open to the public; no pre-registration is required.

Friday, October 9, -

Volodymyr Trotsiuk, Czech University of Life Sciences
Three centuries of spatio-temporal variability of disturbance regime in primary Norway spruce forests across Europe: patterns and consequences

[Join seminar online](#)

Friday, October 16, -

Peter Del Tredici, Arnold Arboretum & Harvard Graduate School of Design

Urban Nature : Human Nature

[Join seminar online](#)

Friday, October 23, -

Morgan Tingley, University of Connecticut
Legacies of researchers past: Long-term inference on bird distributions responding to climate change

[Join seminar online](#)

Friday, October 30, -

Laura Jane Martin, Harvard University HUCE Environmental Fellow / Department of the History of Science
Why do restorationists care about community ecology?

[Join seminar online](#)

We do our best to ensure that listings are accurate, but please check with program organizers for the most up-to-date information.

Tower Hill Botanic Garden Courses

For information on all these courses, go to <http://www.towerhillbg.org/index.php/learn/adult-education/adult-classes-and-workshops/adult-class-listings/>

It's All About the Soil

Saturday, October 17, 2015, 10:30 a.m. to 12:30 p.m.

Member \$20, Non-member \$35

Native Tree ID Walk

Tuesday, October 6th, from 10:30 a.m. to 11:30 a.m.

Included with admission.

Woody Plants of Fall Interest

Saturday, October 17, 2015, 2:00 – 3:30 p.m.

Free with admission

The Mythology of Plants: Talk and Book Signing

Wednesday, October 21, 7:00 p.m.

Free with Admission

At the City's Green Edge: A Planned Landscape for Turn-of-the-20th Century Worcester - Lecture and Book Signing

Sunday, November 1, 1:00 p.m.

Free with Admission

Berkshire Botanic Garden Courses

For more information and to register, go to: <http://www.berkshirebotanical.org/education/>

Pruning Shrubs and Small Ornamental Trees

October 31, 2015 9:30 a.m. to 1:30 p.m.

Members \$30; Non-members \$35

Peter Del Tredici: The Radicle Underground

November 7, 2015, 10:00 am – 12:00 pm

\$25

Making More Plants: Propagating Your Own Woody Plants

November 21, 2015 @ 1:00 pm – 3:00 pm

Members \$30; Non-members \$35

Bark And Buds: Winter Identification Of Trees And Shrubs

December 12, 2015, 10:00 a.m. – 2:00 p.m.

Members \$30; Non-members \$35

Growing on Trees

Webcasts

Urban Forestry Today Fall Noonhour Webcast Series: The Emerald Ash Borer

Emerald Ash Borer Update (Now archived)
Thursday, October 1, 2015, 12:00 – 1:00 p.m. (ET)

With the 2015 growing season coming to a close, arborists, urban foresters, and tree enthusiasts will be eager to learn more about the latest activities of the emerald ash borer that occurred in the spring and summer months. Join Dr. Nate Siegert, of the USDA Forest Service, as he provides the latest information on the ecology, natural history, and management of this well-known pest. Watch this archived webinar at www.urbanforestrytoday.org.

Tree Protection During Construction:

What You Don't Know Can Hurt You
Thursday, November 5, 2015 12:00 – 1:00 p.m. (ET)

Urban tree injury related to construction can degrade the performance of our urban trees, limiting their lifespan and even causing tree failure! Arborists, urban foresters, and tree enthusiasts will learn about the latest research, and review proper practices, related to protecting trees during construction as they join guest speaker, Dr. Gary Johnson, University of Minnesota. Go to: www.joinwebinar.com Code: 138-507-475

These broadcasts are free and each one will offer the opportunity for arborists to earn 1.0 ISA CEU and 0.5 MCA credit.

For more information, contact:

Rick Harper, Dept. of Environmental Conservation
Univ. of Mass., Amherst, charper@eco.umass.edu

The Urban Forestry Today 2015 Webcast Series is sponsored by the University of Massachusetts Department of Environmental Conservation, in cooperation with the USDA Forest Service, Massachusetts Department of Conservation and Recreation, University of Massachusetts Extension, and Massachusetts Tree Wardens' & Foresters' Association. We

Urban Forest Connections

Second Wednesdays | 1:00 p.m. ET

The Forest Service's Urban Forest Connections webinar series brings experts together to discuss the latest science, practice, and policy on urban forestry and the environment. These webinars are open to all. Past webinar presentations and recordings are available online: <http://www.fs.fed.us/research/urban-webinars/>.

The Power of Tree Canopy Data to Plan, Prioritize, and Inspire Stewardship

Part 1: October 14, 2015 | 1:00-2:15 pm ET

*Tom Jacobs, Mid-America Council
Morgan Grove, USDA Forest Service
Dexter Locke, Clark University*

Part 2: October 28, 2015 | 1:00-2:00 pm ET

*Jarlath O'Neil Dunne, University of Vermont
Ian Hanou, Plan-it Geo
Earl Eutsler, Washington DC Department of Transportation*

This two-webinar series will provide the foundation for urban managers and planners to visualize, target, and communicate investment needs for the planting and care of community trees and forests. The first webinar will introduce the science and motivating questions behind data collection at the metropolitan/city scales and the public/private collaboration needed to build ownership, commitment, and stewardship of urban natural resources. In the second webinar we will illustrate the power of technology and tools to put data into the hands of decision makers and community advocates, and offer a solid example of how data, knowledge, and the desire for environmental equity converge to get trees in the ground and growing.

[Connect to the webinar »](#)

Future Webinars

December 9, 2015 | 1:00 p.m.-2:15 p.m. ET

October is NeighborWoods Month

National NeighborWoods® Month is Alliance for Community Trees' annual campaign to plant and care for community trees during the month of October. Each year, tens of thousands of volunteers take action to make their communities greener and healthier by planting trees—turning their neighborhoods into vibrant, livable NeighborWoods®! Join the celebration and register your event at www.neighborwoodsmoth.org.

Growing on Trees

Arnold Arboretum Courses

For more information and to register for these offerings: <http://my.arboretum.harvard.edu/Info.aspx?EventID=1> or call 617-384-5277.

Propagating Trees and Shrubs from Cuttings and Seeds

Jack Alexander, Plant Propagator, Arnold Arboretum

2 Sessions: Saturdays, October 3 and November 7, 9:00am–4:00pm, Dana Greenhouse Classroom

Need to nurture? Then join longtime Arboretum propagator Jack Alexander to learn basic information and techniques for propagating most woody plants. Fee \$180 member, \$230 nonmember.

The Invention of Nature:

Alexander von Humboldt's New World

Andrea Wulf, Historian

Monday, October 5, 6:00–7:00pm (Reception: 5:30 p.m.)

Location: Massachusetts Historical Society, 1154 Boylston Street, Boston

Andrea Wulf reveals in her new book the extraordinary life of the visionary German naturalist Alexander von Humboldt (1769-1859) and how he created the way we **understand nature today**. Wulf traces Humboldt's influences through the great minds he inspired in revolution, evolution, ecology, conservation, art and literature. Fee Free member, \$20 nonmember. Offered with the Massachusetts Historical Society

The Brother Gardeners

Andrea Wulf, Historian

Tuesday, October 6, 7:00–8:30 p.m.

Location: Hunnewell Building

Bringing to life the science and adventure of eighteenth-century plant collecting, *The Brother Gardeners* is the story of how six men created the modern garden and changed the horticultural world in the process. Fee Free member, \$20 nonmember. Offered with the Massachusetts Historical Society.

The Art of Saving Seeds

Lee Buttala

Thursday, October 15, 7:00–8:30pm, Hunnewell Building

Lee Buttala, editor of *The Seed Garden*, by the Seed Savers Exchange, will provide an overview of plant reproduction and pollination, how to preserve varietal traits, and the many reasons for saving seeds from your favorite heirloom and open-pollinated plants. Fee Free member, \$5 nonmember

Second Nature: An Environmental History of New England

Richard W. Judd, PhD, Adelaide & Alan Bird Professor of History, University of Maine

Sunday, November 1, 2:00–3:15 p.m., Hunnewell Building
Historian Richard W. Judd explores the mix of ecological process and human activity that shaped that history over the past 12,000 years. Judd will relate significant cultural and ecological changes that have influenced the evolution of the New England landscape over time. Fee: Free member, \$10 nonmember

Native Shrubs for Challenging Sites

Jessica Lubell-Brand, PhD, Assistant Professor, Department of Plant Sciences, University of Connecticut

Thursday, November 5, 7:00–8:15pm

Location: Hunnewell Building

Native plants are popular for creating sustainable landscapes. Natives are also a desirable solution to the invasive plant problem, but they must be able to perform well in difficult landscape situations, like foundation plantings, and dry, shaded locations. Jessica will touch on readily available native shrubs, which can handle tough conditions as well as lesser-known native shrub taxa, suitable for challenging sites. Fee Free \$5 member, \$10 nonmember

Bark: A Multi-Sensory Experience of Trees

Michael Wojtech, Naturalist, Author, and Educator

Sunday, November 8, 9:00am–1:00pm

Location: Hunnewell Building

Through presentations and a series of participatory exercises, learn how to identify tree species by their bark, and uncover why such a variety of bark characteristics exist. Class will meet indoors and in the landscape of the Arnold Arboretum. Open to tree enthusiasts at all levels of experience.

Fee \$55 member, \$70 nonmember

Introduction to Winter Tree Identification

Kyle Stephens, Arborist, Arnold Arboretum

2 Sessions: Saturday, December 5 and 12, 9:00am–12:30pm; Location: Hunnewell Building

Learn the basic information necessary to identify deciduous trees during their dormant season. Looking at specific character combinations, you will determine the genus and species of several types of trees in the Boston area. Fee \$75 member, \$100 nonmember

Growing on Trees

Currants, Gooseberries, and White Pine Blister Rust— from UMass Extension

White pine blister rust (WPBR), caused by the fungus *Cronartium ribicola*, is an aggressive and non-native pathogen that was introduced into eastern North America in 1909. Since its introduction, the pathogen has killed millions of five-needle pines and has nearly eliminated western white pine throughout its native range. While New England has only one native five-needle pine, eastern white pine (*Pinus strobus*), this tree is abundant and widespread in forested and managed landscapes. The environmental conditions required for development of WPBR are not as easily satisfied here as they are in western North America, but the disease has killed countless white pines over the past century in New England.

Many, but not all, rust fungi require two botanically unrelated hosts to complete their life cycle. In New England, the WPBR fungus also infects *Ribes*, commonly known as gooseberry and currant. *Ribes* are small, woody shrubs that are native to New England forests. However, the introduced European black currant (*R. nigrum*) was widely planted for berry production after European settlement and is especially susceptible to the disease. As a result, the import, cultivation, sale and planting of black currant was outlawed under a federal quarantine and eradication ban enacted in the 1920s. After an intensive program of manual eradication lasting from the 1920s through the 1950s, the *Ribes* population was reduced in New England. Consequently, the federal ban on *Ribes* cultivation and sale was lifted in the 1960s. Despite the relaxation of the federal ban, state quarantine and eradication laws still exist today in many eastern states, including Massachusetts.



White pine blister rust,
<http://www.extension.umn.edu/>

In the early 2000s, the pressure to lift the ban on cultivation and sale of *Ribes* intensified, led by commercial berry growers. Numerous cultivars of currants and gooseberries with immunity to WPBR had been developed and were marketed as safe for commercial berry production. As a result, Massachusetts law was modified to allow the cultivation and sale of *Ribes* in certain towns after a formal permitting process (the control area permit). All cultivars of black currant (*R. nigrum*) are still banned and no permit may be obtained for this species. Currently, 144/351 cities and towns in the Commonwealth of Massachusetts still prohibit planting of all currants and gooseberries (1). Since the modification of the *Ribes* ban in Massachusetts, commercial production of currants and gooseberries continues to increase as berry growers expand into this niche market.

In 2008, researchers in Connecticut observed the WPBR pathogen on a black currant cultivar (*R. nigrum* 'Titania') bred for immunity to the disease (2). In light of this discovery, researchers in eastern Canada began surveying rust populations in New England and eastern Canada to determine if a new strain of the fungus had been introduced. The researchers determined that it wasn't a newly introduced strain, but a more troubling scenario; a new, virulent strain of the pathogen had naturally developed in northeastern North America. Through genetic mutation, the new strain of the pathogen is capable of infecting numerous cultivars of black currant that were bred for immunity to the disease. This previously immune *Ribes* cultivar (*R. nigrum* 'Titania') has been widely planted by commercial berry growers in the northeast. Survey results confirm the new strain is present in New Hampshire, Quebec and New Brunswick and Nova Scotia, in addition to Connecticut.

Widespread concern now exists that WPBR will once again become a serious threat for the long-term health of eastern white pine in New England. Young white pines are more susceptible to the disease because the environmental conditions required for disease development occur most often closer to the ground (higher humidity and shade with free moisture on plant surfaces). While the majority of our white pine population is mature and less susceptible, a considerable number of young white pines exist in our forests and managed landscapes. Symptoms of the disease include top dieback, browning needles and the presence of stem and trunk lesions accompanied by profuse resin flow. The stem

(Continued on page 10)

White Pine Blister Rust

(Continued from page 9)

and trunk lesions may appear as rupturing blisters with oozing and hardened resin. Insect infestation may often be visible near the lesions. The fungus invades the tree through the needles and slowly progresses downward to the twigs and branches before finally girdling the main trunk. No control measures exist for the pathogen on white pine and spores have been documented to travel several miles. However, chemical control of the fungus on *Ribes* is possible if performed properly by commercial growers.

In light of these new findings, the state of New Hampshire reissued the moratorium banning the import, cultivation, sale and planting of black currant that was relaxed in 1999 under special permit. The laws managing the cultivation and sale of *Ribes* in Massachusetts have not been altered since the ban on black currant was never lifted. This case highlights the tenuous nature of breeding plant disease immunity and the dangers that can result when that immunity is broken through natural selection.

For a Q & A with further information on *Ribes* in Massachusetts see: <https://ag.umass.edu/fact-sheets/currants-gooseberries-in-massachusetts>

Written by: Nicholas Brazee

Revised: 05/2014

Factsheet from UMass Extension: <https://ag.umass.edu/fact-sheets/white-pine-blister-rust-ribes-species>

Note: See 330 CMR 9: <http://www.mass.gov/eea/agencies/agr/farm-products/plants/plant-inspection-laws-and-regulations.html> (law and disallowed municipality list). *R. nigrum* is not allowed, but planting red currants and gooseberries may be allowed with a control area permit issued by the Massachusetts Department of Agricultural Resources.

If someone wanted to plant *Ribes* other than *R. nigrum* and was not in a disallowed town the contact within MDAR is: Howard Vinton, Inspector, Feed Control Officer, Crop & Pest Services, 617-626-1803 Howard.Vinton@state.ma.us

NASA Finds Vegetation Essential for Limiting City Warming Effects

By Ellen Gray

August 25, 2015—Cities are well known hot spots - literally. The urban heat island effect has long been observed to raise the temperature of big cities by 1 to 3°C (1.8 to 5.4°F), a rise that is due to the presence of asphalt, concrete, buildings, and other so-called impervious surfaces disrupting the natural cooling effect provided by vegetation. According to a new NASA study that makes the first assessment of urbanization impacts for the entire continental United States, the presence of vegetation is an essential factor in limiting urban heating.

Impervious surfaces' biggest effect is causing a difference in surface temperature between an urban area and surrounding vegetation. The researchers, who used multiple satellites' observations of [urban areas](#) and their surroundings combined into a model, found that averaged over the continental United States, areas covered in part by impervious surfaces, be they downtowns, suburbs, or interstate roads, had a summer temperature 1.9°C higher than surrounding rural areas. In winter, the temperature difference was 1.5 °C higher in urban areas.

"This has nothing to do with greenhouse gas emissions. It's in addition to the greenhouse gas effect. This is the land use component only," said Lahouari Bounoua, research scientist at NASA's Goddard Space Flight Center in Greenbelt, Maryland, and lead author of the study. Read the full story at phys.org.

Grants

DCR Urban and Community Forestry Challenge Grants

Challenge grants are 50-50 matching grants (75-25 for environmental justice projects) to municipalities and nonprofit groups in Massachusetts communities of all sizes for the purpose of building local capacity for excellent urban and community forestry at the local and regional level.

The USDA Forest Service provides funding for the grant program, and DCR administers the grants with guidance from **the Massachusetts Tree Wardens' and Foresters' Association. The DCR Urban and Community Forestry Program** assists communities and nonprofit groups in their efforts to protect and manage community trees and forest ecosystems, **with the ultimate aim of improving the environment and enhancing the livability of all of Massachusetts's communities.**

For more information on the Challenge Grants, including our Eversource Go Green grants and National Grid Partnership Grants, contact Julie Coop at 617-626-1468 or julie.coop@state.ma.us or Mollie Freilicher at 413-577-2966 or mollie.freilicher@state.ma.us. Next deadline: November 1 (Full Application)

Changes to the DCR Urban and Community Forestry Challenge Grant

In 2016, our Urban and Community Forestry Challenge Grant will move to one grant round per year. The annual deadline will be November 1. This move will enable the program to better review and compare grant proposals. Look for some additional changes to the 2016 program in upcoming issues.

The Henry T. Wiggin Charitable Trust

Provides grants (generally around \$2,000) for medical, animal welfare, conservation and other purposes, primarily in Massachusetts. Groups requesting funding should do so in writing, providing a general description of the project and a statement of need for the funding requested. Send it to: James L. Smithson, Esq., Henry T. Wiggin Charitable Trust, c/o Tyler & Reynolds, P.C., 77 Summer St., Boston, MA 02110. Telephone: (617) 695-9799. There are no specified application forms or deadlines. (From www.fundsnet.services.com)

Clif Bar Foundation

Small Grants represent the vast majority of our Grants Programs and account for more than 70% of our total giving. These grants are awarded for general organizational support or to fund specific projects. Small Grants average approximately \$8,000 each. Applications must be received by February 15 for consideration during the first quarter of the year, and May 15, August 15, and November 1 for consideration of funding during the second, third and fourth quarters, respectively. (Of course we would appreciate it if you could submit your application earlier in the quarter.) Grants awarded during a particular quarter will be announced at the beginning of the following quarter. For more information on project areas and for application information, go to: <http://clifbarfamilyfoundation.org/Grants-Programs>

Gleanings

Vancouver to Quantify Value of Every Street Tree

September 8, 2015, Vancouver, BC—Vancouver plans to geo-code every street tree in its database and create a special mapping program that will allow residents to geo-locate their own trees on the same map. Eventually, the program will **quantify the annual “eco impact” of each tree, right down to how much it saves taxpayers in stormwater diversion, energy savings from shading, sequestration of carbon dioxide and filtration of pollutants.** More than two decades ago Vancouver arborists created a spreadsheet to record the location, type, height and diameter of every one of the city's **140,000 street trees.** It's called VanTree, an open database created in the 1990s and has been continually updated.

Now the city will geo-code every street tree in the database, along with a mapping program that allows resident to geo-locate their own trees. **“The goal is all about better managing our urban forest,”** said Katherine Isaac, the urban forest strategy project manager at the Vancouver park board. Read the full story at ACTrees.org.

Gleanings

Planting Street Trees Where They're Needed Most

Washington, DC (August 19, 2015) — While the science is clear that trees are central to healthy, livable cities, the benefits of urban trees are rarely experienced equally across a city. At a recent **conference organized by ACTrees member Casey Trees, Virginia Tech's Cene Ketcham addressed** how lower tree canopy is often correlated with lower-income neighborhoods and communities of color. Ketcham reported on his study of 11 different programs in six cities.

While non-profit and city-led tree planting programs are poised to bridge this gap, most are not designed with environmental justice goals in mind. The groups leading these urban tree-planting programs are increasingly aware of this problem, but what specific strategies are most effective for getting urban trees into the areas that need them the most?

Ketcham studied 11 different programs in six cities: Austin, Texas; Charlotte, North Carolina; Denver, Colorado; Minneapolis, Minnesota; Portland, Oregon; and Sacramento, California. Each of these programs has a different planting plan that accounts for inequalities.

The programs Ketcham identified as the most successful at getting trees into underserved neighborhoods are NeighborWoods in Charlotte, Neighborhood Trees in Portland, and CityShade in Austin. Based on the success of these programs, Ketcham identified four strategies city government and non-profit tree planting organizations can implement to make sure trees are planted where they are most needed:

Target Planting Areas

Successful tree planting programs use outreach efforts and highly targeted planting. "Portland canvassers go door to door in low-income neighborhoods advertising the benefits of trees. A lot of effort goes toward getting trees in where **people want them,**" Ketcham said. **Of course, city-wide tree cover is the goal, but in larger cities where trees are disproportionately benefiting some neighborhoods, targeted tree-planting efforts can go a long way.**

Build Strong Municipal and Non-Profit Partnerships

Programs that have been successful bring together public and private organizations. "Maybe the city buys the trees, while the non-profit runs the program," said Ketcham. In any case, it's important that both groups take ownership of the tree-planting program.

Reduce Property Owner Responsibility

Particularly in low-income neighborhoods, it's important to reduce the pressure on individual property owners to plant trees. Not only are people in these areas struggling to overcome challenges bigger than increasing the tree canopy, but residents in these areas are more likely to be renters.

Prioritize Public Spaces

While most programs focus on getting trees onto residential properties, successful programs work on "improving tree cover, not just in residential areas but also in public spaces." Planting trees in public spaces can provide neighborhood-wide health and environmental benefits.

Read the full article by Liz Camuti in **The Dirt:** "[How Can We Get Trees to the Communities That Need Them the Most?](#)" **Seen in ACTrees newsletter.**

Chico, CA Residents Required to Water City Trees

By Laura Urseny, *Chico Enterprise-Record*

September 5, 2015—Chico—Two requests to remove bothersome city trees were turned down by the Bidwell Park and Playground Commission Monday, but the concept of residential responsibilities for city trees rose to the surface. [...] The city code requires that residents take care of city trees, although processes like pruning are left to the city. Reaching for the code book, Efseaff noted that a resident who damages a city tree, such as not watering it forcing its death, can face up to a \$5,000 fine. A resident could also be forced to bear the cost of replacing a dead tree. Lesser penalties could be assessed, depending on the damage, which could have been unintentional, Efseaff noted. *Read the full story at www.chicoer.com*



News

Springfield Receives \$39,000 Grant to Preserve Wildlife

By [Ashley Afonso](#)

September 14, 2015—Springfield, Mass (WWLP) – The city of Springfield is receiving federal recognition for its efforts to preserve urban wildlife.

Dozens of people gathered at Riverfront Park in Springfield to focus on a new partnership that will contribute to **saving the city's wildlife, while also educating them. The** U.S Fish and Wildlife Service joined with multiple partners in Springfield in hopes of connecting city residents **with the outdoors.** **"Re-Green Springfield"** and several other partners will work to conserve the Connecticut River watershed, and restore urban streams and forest in the Abby Brook conservation area. Re-green Springfield has received \$39,000 in grants to help support these efforts. **"The city has changed in demographics and our socioeconomic character has changed. We're trying to introduce youth, low income folks, people at risk and other folks who might not otherwise understand they do live in an urban forest," said President of Re-Green Springfield David Bloniarz.** Read the full story and watch the news video at: www.wwlp.com.

Researchers Look to Stormwater as a Solution for Semiarid Regions

By Rob Jordan

September 17, 2015— Down the drain. It's a phrase synonymous with lost opportunities. In semiarid regions, opportunity for improved water supply and security literally goes down the drain every time episodic rainstorms pass through. To take advantage of this rainfall, Stanford researchers are working with local and federal agencies in Los Angeles, Sonoma and other drought-stricken California cities in an unprecedented effort to capture and reuse stormwater. The approach could be part of a solution not only to water shortages but also to runoff laced with pesticides and other chemicals that can contaminate beaches and contribute to fish-killing algae blooms. Read the full story and watch a video at phys.org.

Tree Counter Is Astonished by How Many Trees There Are

September 2, 2015—Here is a pop quiz: How many trees are on the planet? Most people have no idea. A new study says the answer is more than 3 trillion trees — that's trillion with a T, and that number is about eight times more than a previous estimate. Read or listen to the full story at npr.org.

As Wildland-Urban Interface Grows, So Does Risk To People and Habitats

September 15, 2015—Humans and habitat intersect in the Wildland-Urban Interface, or WUI, a geography that now includes about one-third of homes in the United States within just 10 percent of the nation's land area. Both numbers are growing, according to a new USDA Forest Service map book summarizing the extent of the nation's WUI nationally and by state. The maps give land managers, policy makers, fire managers and homeowners a valuable new source of information on housing density, land ownership, land cover and wildland vegetation cover in WUI areas in the contiguous united states. Read the full story at Phys.org.

Data Driven Green Design

By Aaron Dubrow

September 16, 2015—According to a study by the non-profit Environmental and Energy Study Institute, the commercial and residential building sector accounts for 39 percent of carbon dioxide (CO2) emissions in the United States per year, more than any other sector, including transportation and industry. These emissions come mainly from the combustion of fossil fuels to provide heating, cooling and lighting for our homes and offices, and to power appliances and electrical equipment. "By transforming the built environment to be more energy-efficient and climate-friendly," the report states, "the building sector can play a major role in reducing the threat of climate change." Planners, architects and municipalities are actively pushing for energy-efficiency in design, but the tools needed to predict the impacts of new buildings in advance are limited in their function and often are prohibitively expensive to access. PlanIT Impact, a company based in Kansas City, is working to fix this problem and is in the process of helping to build smart connected communities able to serve citizens better. Read the full story at phys.org.

Ozone Can Reduce a Flower's Scent That's Critical For Attracting Pollinators

September 8, 2015

Ozone can reduce a flower's scent that's critical for attracting pollinators. High [ozone concentrations](#) in [ambient air](#) caused fast degradation of the scent emitted from *Brassica nigra* flowers, reducing the range over which flowers could be identified by pollinators. Behavioral tests conducted with the buff-tailed bumblebee confirmed that ozone concentrations commonly occurring near large urban areas can strongly inhibit [pollinators'](#) attraction to flowers. Read the full story

On the Horizon

- October NeighborWoods Month—
[Register](#) your event today
- Oct 1 Deadline: [Intent to Apply DCR Urban & Community Forestry Challenge Grant](#)
- Oct 1 Urban Forestry Today webinar
(archived at www.urbanforestrytoday.org.)
- Oct 1 EAB University Webinar, 11 a.m. EST,
<http://www.emeraldshborer.info>,
- Oct 2 MCA Exam, Elm Bank, Wellesley, www.massarbor.org
- Oct 2-3 **2015 DCR Tree Steward Training, Harvard Forest, Petersham**
- Oct 6 EPA Green Infrastructure Webcast, www.epa.gov
- Oct 6 Western Massachusetts Tree Wardens Dinner Meeting, Northampton, MA, www.masstreewardens.org
- Oct 9-11 **Women's Tree Climbing Workshop, Petersham, MA,**
www.newenglandisa.org
- Oct 14 Urban Forest Connections Webinar,
<http://www.fs.fed.us/research/urban-webinars/>
- Oct 20 MAA Safety Saves, Elm Bank, Wellesley,
www.massarbor.org
- Oct 20 MAA Dinner Meeting, Framingham, www.massarbor.org
- Oct 24-27 New England ISA Annual Conference, North Conway, NH, www.newenglandisa.org
- Oct 28 Urban Forest Connections Webinar,
<http://www.fs.fed.us/research/urban-webinars/>
- Nov 1 [DCR Urban & Community Forestry Challenge Grants Due](#)
- Nov 5 Urban Forestry Today webinar, www.joinwebinar.com
Code: 138-507-475
- Nov 12-14 TCI Expo, Pittsburgh, PA, www.tcia.org
- Nov 16-17 Society of Municipal Arborists Annual Conference, Denver, CO, www.urban-forestry.com
- Nov 18-19 Partners in Community Forestry Conference, Denver, CO, www.arborday.org
- Dec 2-4 New England Grows, Boston, MA,
www.newenglandgrows.org
- Dec 2-5 American Society of Consulting Arborists Annual Conference, Tucson, AZ,
<https://www.asca-consultants.org/>
- Dec 8 EPA Green Infrastructure Webcast, www.epa.gov
- Dec 9 Urban Forest Connections Webinar,
<http://www.fs.fed.us/research/urban-webinars/>
- Dec 31 Deadline: Tree City USA, Tree Line USA, Tree Campus USA

Bureau of Forestry
Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston, MA 02114

Julie Coop, Urban and Community Forester
julie.coop@state.ma.us, 617-626-1468

Mollie Freilicher, Community Action Forester
mollie.freilicher@state.ma.us, (413) 577-2966



Charles D. Baker, Governor

Karyn E. Polito, Lieutenant Governor

Matthew A. Beaton, Secretary, Executive Office of Energy and Environmental Affairs

Carol I. Sanchez, Commissioner, Department of Conservation and Recreation

Peter Church, Director of Forest Stewardship, Department of Conservation and Recreation

The Department of Conservation and Recreation prohibits discrimination in employment on the basis of race, color, creed, religion, national origin, ethnicity, gender, gender identity or expression, age, sexual orientation, Vietnam Era Veteran status, or disability.

The Citizen Forester is made possible through a grant from the USDA Forest Service Urban and Community Forestry Program and the Massachusetts Department of Conservation and Recreation, Bureau of Forestry.

If you have a topic you'd like to see covered or want to submit an item to *The Citizen Forester* (article, photo, event listing, etc.), please contact [Mollie Freilicher](#) or click [here](#).

Subscribe? Unsubscribe? You are receiving this email because you have requested to receive *The Citizen Forester*. If this is an error or you do not wish to receive this newsletter, please email mollie.freilicher@state.ma.us. To sign up, click [here](#).